REFERENCES 51

[47] J. Cabrera Arteaga, "Artificial software diversification for webassembly," 2022. QC 20220909.

- [48] M. Jacob, M. H. Jakubowski, P. Naldurg, C. W. N. Saw, and R. Venkatesan, "The superdiversifier: Peephole individualization for software protection," in *International Workshop on Security*, pp. 100–120, Springer, 2008.
- [49] R. Sasnauskas, Y. Chen, P. Collingbourne, J. Ketema, G. Lup, J. Taneja, and J. Regehr, "Souper: A Synthesizing Superoptimizer," arXiv preprint 1711.04422, 2017.
- [50] J. Cabrera Arteaga, P. Laperdrix, M. Monperrus, and B. Baudry, "Multi-Variant Execution at the Edge," arXiv e-prints, p. arXiv:2108.08125, Aug. 2021.
- [51] S. Bhatkar, D. C. DuVarney, and R. Sekar, "Address obfuscation: an efficient approach to combat a board range of memory error exploits," in *Proceedings of the USENIX Security Symposium*, 2003.
- [52] S. Narayan, C. Disselkoen, D. Moghimi, S. Cauligi, E. Johnson, Z. Gang, A. Vahldiek-Oberwagner, R. Sahita, H. Shacham, D. Tullsen, et al., "Swivel: Hardening webassembly against spectre," in USENIX Security Symposium, 2021.
- [53] E. Johnson, D. Thien, Y. Alhessi, S. Narayan, F. Brown, S. Lerner, T. McMullen, S. Savage, and D. Stefan, "Sfi safety for native-compiled wasm," NDSS. Internet Society, 2021.
- [54] J. Cabrera-Arteaga, N. Fitzgerald, M. Monperrus, and B. Baudry, "WASM-MUTATE: Fast and Effective Binary Diversification for WebAssembly," arXiv e-prints, p. arXiv:2309.07638, Sept. 2023.
- [55] M. Willsey, C. Nandi, Y. R. Wang, O. Flatt, Z. Tatlock, and P. Panchekha, "Egg: Fast and extensible equality saturation," *Proc. ACM Program. Lang.*, vol. 5, jan 2021.
- [56] A. Homescu, S. Neisius, P. Larsen, S. Brunthaler, and M. Franz, "Profile-guided automated software diversity," in *Proceedings of the 2013 IEEE/ACM International Symposium on Code Generation and Optimization (CGO)*, pp. 1–11, IEEE, 2013.
- [57] D. Cao, R. Kunkel, C. Nandi, M. Willsey, Z. Tatlock, and N. Polikarpova, "Babble: Learning better abstractions with e-graphs and anti-unification," *Proc. ACM Program. Lang.*, vol. 7, jan 2023.
- [58] R. Tate, M. Stepp, Z. Tatlock, and S. Lerner, "Equality saturation: A new approach to optimization," in *Proceedings of the 36th Annual ACM SIGPLAN-SIGACT Symposium on Principles of Programming Languages*, POPL '09,

52 REFERENCES

(New York, NY, USA), p. 264–276, Association for Computing Machinery, 2009.

- [59] T. Rokicki, C. Maurice, M. Botvinnik, and Y. Oren, "Port contention goes portable: Port contention side channels in web browsers," in *Proceedings* of the 2022 ACM on Asia Conference on Computer and Communications Security, ASIA CCS '22, (New York, NY, USA), p. 1182–1194, Association for Computing Machinery, 2022.
- [60] S. Narayan, C. Disselkoen, D. Moghimi, S. Cauligi, E. Johnson, Z. Gang, A. Vahldiek-Oberwagner, R. Sahita, H. Shacham, D. Tullsen, and D. Stefan, "Swivel: Hardening WebAssembly against spectre," in 30th USENIX Security Symposium (USENIX Security 21), pp. 1433–1450, USENIX Association, Aug. 2021.
- [61] T. Schnitzler, K. Kohls, E. Bitsikas, and C. Pöpper, "Hope of delivery: Extracting user locations from mobile instant messengers," in 30th Annual Network and Distributed System Security Symposium, NDSS 2023, San Diego, California, USA, February 27 March 3, 2023, The Internet Society, 2023.

${f Part~II}$ Included papers